

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Status of the Claims

New claims 13-17 are presented. Claim 3 is requested to be cancelled. Claims 1-2 and 4-12 are currently amended. Support for the amendments is provided in the original claims and specification.

This amendment adds, changes and cancels claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claims remain under examination in the application, is presented, with an appropriate defined status identifier. Upon entry of this amendment, claims 1-2 and 4-17 are pending in this application.

Claim Objections

Claims 5-9 are objected to as lacking antecedent basis. The amended claims obviate this objection.

Claim 9 is objected to, because the word "about" allegedly "renders the claim unclear as to what is the claimed value." Applicants do not agree with this objection and believe that one of skill in the art would understand "about" to refer to the dictionary definition which means "approximately." However, in the interest of advancing prosecution Applicants have amended the claim to recite "substantially," which was not identified as "unclear" in the Office Action.

Rejections under 35 U.S.C. § 102(b)

Claims 1, 2, 4-6 and 10-11 are rejected under 35 U.S.C. § 102 (b) as allegedly anticipated by Singer et al. (U.S. Patent No. 5,214,386). The current form of the amended claims obviate this rejection.

The claims have been amended to incorporate the elements of cancelled claim 3, which was not rejected as allegedly anticipated by Singer. Accordingly, Applicants respectfully request withdrawal of this rejection.

Rejections under 35 U.S.C. § 103(a)

Rejection of claims 3, 7-8 and 12 over Singer

Claims 3, 7-8 and 12 are rejected under 35 U.S.C. § 103(a) as allegedly obvious over Singer et al. (U.S. Patent 5,214,386). Applicants traverse this rejection.

The evidence and explanation of record does not establish a prima facie case that the claims are obvious over Singer. To establish a prima facie case of obviousness, the U.S. Patent and Trademark Office must meet three basic elements:

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

Manual of Patent Examining Procedure, 8th ed. (M.P.E.P.) § 2142.

The Office Action asserts that

[i]t would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Singer et al. to incorporate the use of a conventional optical device, for measuring particle sizes greater than 0.1 micron, as an alternative method of measuring the particle size for comparison purposes.

Office Action at page 5. However, Singer does not teach or suggest all elements of the claimed apparatus. Singer describes an apparatus for measuring various characteristics of particles that are derived from measurement of the electrical charge on the particle. Amended claim 1¹ recites an apparatus for characterizing a particle, wherein the apparatus comprises an electrical charge sensor adapted to determine an electrical charge on the particle and an optical device adapted to determine a second characteristic of the particle, wherein the apparatus is adapted to provide an indication of the nature of the particle according to the charge and the second characteristic. Singer does not teach or suggest combining charge measurement with another analytical technique to identify the nature of a

¹ Claim 1 has been amended to include the limitations of claim 3, which is cancelled. Thus, we discuss amended claim 1 in this context.

particle. And Singer certainly does not teach or suggest including an optical device to obtain optical information used in combination with charge information to characterize a particle.

Singer also does not teach or suggest the electrode configuration of claims 7 and 12, contrary to the Office Action's assertion. Singer describes an arrangement where three electrodes are spaced from one another along a tube. Singer teaches integrating the signals from the three electrodes/sensors 3 in a time-delayed manner. Col. 5, lines 4-5. The arrangement of claims 7 and 12 uses two outer electrodes that are connected together and the difference between the charge on the central electrode and the outer, interconnected electrodes is measured.

Moreover, Singer also does not provide any suggestion or motivation to modify Singer to arrive at the claimed invention. In fact, Singer teaches away from using an optical device. See MPEP § 2145. Specifically, Singer refers to prior art processes involving optical measurement, but rejects these as being unsuitable. Col. 1, lines 13 to 22. Using the teachings of Singer, it would not have been obvious to combine electrical charge detection and a second detection technique, such as optical detection, together in an apparatus and to derive information about the nature of a particle from the combination of the information provided by these two techniques.

Accordingly, Applicants respectfully request withdrawal of this rejection.

Rejection of claim 9 over Singer

Claim 9 is rejected under 35 U.S.C. § 103(a) as allegedly obvious over Singer in view of Hoenig (U.S. Patent No. 4,117,715). Applicants traverse this rejection.

As discussed above, Singer does not teach or suggest an apparatus that combines electrical charge detection and a second detection technique, such as optical detection, to characterize a particle using the combined information provided by these two techniques. Hoenig does not remedy this deficiency.

Hoenig describes an arrangement for pumping air-born particles onto a conductive metal screen from which the charge can be measured. Hoenig also discloses measuring a pressure drop across a filter to determine the density of particles in the air. The combined teachings of Singer and Hoenig simply do not teach or suggest an apparatus for characterizing a particle, wherein the apparatus comprises an electrical charge sensor

adapted to determine an electrical charge on the particle and an optical device adapted to determine a second characteristic of the particle, wherein the apparatus is adapted to provide an indication of the nature of the particle according to the charge and the second characteristic. Hoening also does not teach or suggest the claimed apparatus further comprising a filter adapted to prevent particles greater than substantially 10µm from entering the tube, as recited in amended claim 9.

Accordingly, Applicants respectfully request withdrawal of this rejection.

CONCLUSION

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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By



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